Space Weather Forecast

Issued on Tuesday, 30 November 2021 at 12:21 Local

This forecast provides a four day assessment of space weather events. The probabilities stated below are for reaching or exceeding the given levels. For more information about space weather impacts please see the Met Office Space Weather Scales https://www.metoffice.gov.uk/weather/learn-about/space-weather/uk-scales

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Space Weather Forecast Headline: Increased chance (30%) for G1/Minor Storm activity day 3 and perhaps day 4.

Analysis of Space Weather Activity over past 24 hours

Solar Activity: Solar activity was Very Low. There are currently five numbered sunspot regions on the visible disc. Two in the southwest quadrant, of which one is relatively large and complex, and two in the northeast and southeast quadrants, both of which are small and simple. One other spot group is near centre disc in the northern hemisphere, a slightly lager bi-polar type, but currently inactive. A weak CME from a filament lift off may have a slight Earth-directed component, likely arriving on 2nd December. No other Earth-directed CMEs were evident in available imagery.

Solar Wind / Geomagnetic Activity: The solar wind speed was at ambient levels. Its associated total magnetic field strength was weak, with the important north-south component also weak and occasionally negative. Geomagnetic Activity was Quiet (Kp 0-2).

Energetic Particles / Solar Radiation: The count rate of energetic particles (high energy protons) was at background with no solar radiation storms observed.

Four-Day Space Weather Forecast Summary

Solar Activity: Solar activity is likely to remain mostly Very Low, with a chance of common class flares, mainly from the more complicated and larger sunspot region in the southwest.

Solar Wind / Geomagnetic Activity: A coronal mass ejection may give a small chance of some impact at Earth on day 1 (30th). Enhancements from various coronal hole fast winds are expected through the period, including day 2 (1st), then a larger coronal hole possible on day 3 or during day 4 (2nd or 3rd). A filament eruption which left the Sun on the 29th may also bring a brief elevation to solar wind speeds during day 3 (2nd). Geomagnetic activity is expected to be mostly Quiet to Unsettled, but with an ongoing chance of Active intervals. A very slight chance of G1/Minor Storms is maintained on days 1 and 2 (30th & 1st), but this increasing to a chance on days 3 and 4 (2nd & 3rd).

Energetic Particles / Solar Radiation: The count rate of energetic particles (high energy protons) is forecast to persist at background with no solar radiation storms observed.

Issued by Met Office Space Weather Advisor, Tel: +44 (0) 330 135 4254 Email: moswoc@metoffice.gov.uk

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Geomagnetic Storms:

Geo-Magnetic Storm Probability (Exceedance)	Level	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Minor or Moderate	G1 to G2	No	5	5	30	30
Strong	G3	No	1	1	1	1
Severe	G4	No	1	1	1	1
Extreme	G5	No	1	1	1	1

Radio Blackouts - X Ray Flares:

X Ray Flares Probability	Level	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Active	R1-R2 M Class	No	5	5	5	5
Very Active	R3 to R5 X	No	1	1	1	1

Solar Radiation Storms - (High Energy Protons):

Radiation Storms Probability (Exceedance)	Level (cm^{-2} sr^{-1} s^{-1})	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Active	≥ S1	No	1	1	1	1
Very Active	≥ S3 *	No	1	1	1	1

* S3 ≥ 10 MeV ≥ 1000 pfu and / or ≥ 50 MeV ≥ 10 pfu. (pfu = $cm^{-2}sr^{-1}s^{-1}$)

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